

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A method of extending an Open Shortest Path Found (OSPF) protocol used in a network having a plurality of nodes connected by optical links, the method comprising:

~~the OSPF protocol having~~

(a) generating, at a first network node, an OSPF packet for transmission over an optical link to a second network node, the OSPF packet comprising an opaque Link State Advertisement (LSA) having an LSA header and a LSA payload; ~~the method comprising:~~

~~providing on the LSA header a single Vendor attribute Link State Identification (ID) field; and~~

(b) providing on the LSA payload a set of Vendor Attribute Type/Length/Value (TLV) fields on the LSA payload, including the Vendor Attribute Value field including an Enterprise Code field containing information identifying a vendor, and a Vendor attribute-Data section containing data related to the vendor; ~~and the Type field being a Vendor attribute-Type field~~

(c) indicating the a presence of the Enterprise Code field in the Vendor attribute Value field by providing a Vendor attribute-Type field on the Type field; and
~~the Vendor attribute Link State ID field of the LSA header~~

(d) indicating the a presence of the set of Vendor Attribute TLV fields by providing a single Vendor attribute Link State Identification (ID) field on the LSA header.

2. (currently amended) The method as described in claim 1, wherein the Vendor attribute Link State ID field of the LSA header replaces an Opaque Type and a Type-Specific ID fields of the standard opaque LSA header and has a numerical value, which is ~~designed not to~~ selected to avoid conflict with the numerical values of a the Opaque Type and a the Type-Specific ID fields of a the standard opaque LSA header and which indicates the presence of Vendor specific link related information in the Vendor attribute-Data section of the set of Vendor Attribute TLV fields.

3. (canceled)

4. (currently amended) The method as described in claim 1 ~~2~~, wherein the Vendor attribute Link State ID field of the LSA header replaces an Opaque Type and a Type-Specific ID fields of the opaque LSA header and has a numerical value which ~~wherein the numerical value of the Vendor attribute Link State ID field~~ indicates the presence of Vendor specific node related information in the Vendor attribute-Data section of the set of Vendor Attribute TLV fields.

5. (currently amended) The method as described in claim 2 ~~3~~, wherein the Vendor specific link related information is a wavelength division multiplexing (WDM) link related information comprising one or more of the following:

frequencies of dither tones modulated onto a wavelength of the WDM link;

a location field listing the physical shelf, card slot, and port location of the node terminating the WDM link;

a wavelength identifier of the wavelength of the WDM link;

a path name assigned to the wavelength of the WDM link;

a direction of the WDM link; and

a working state of the wavelength of the WDM link.

6. (previously presented) The method as described in claim 5, wherein the Vendor attribute-Data section comprises a sub-TLV field, the sub-TLV field comprising a sub-sub set of Vendor Attribute TLV fields, which contains said Vendor specific link related information.

7. (previously presented) The method as described in claim 4, wherein the Vendor specific node related information comprises one or more of the following:

a Node Name which includes a text string bearing the name of the node; and

a Software Version which includes a text string characterizing the current software load of the node.

8. (previously presented) The method as described in claim 7, wherein the Vendor attribute-Data section comprises a sub-TLV field, the sub-TLV field comprising a sub-sub set of Vendor Attribute TLV fields, which contains said Vendor specific node related information.

9. (previously presented) The method as described in claim 8, wherein the sub-TLV field comprises an Advertising Router ID field.

10. (currently amended) A method for distributing vendor specific information for a wavelength division multiplexing (WDM) optical network, the method comprising:
~~providing~~ (a) generating an OSPF packet at a network node, the OSPF packet comprising an opaque Link State Advertisement (LSA) having an LSA header and a LSA payload;

(b) providing ~~on the LSA header~~ a single Vendor attribute Link State Identification (ID) field on the LSA header;

(c) providing ~~on the LSA payload~~ a set of Vendor ~~A~~-attribute Type/Length/Value (TLV) fields on the LSA payload, the Vendor attribute Value field including an Enterprise Code field and a Vendor attribute-Data section, wherein said Enterprise code field includes information identifying a vendor; ~~and the Type field being a Vendor attribute-Type field~~

(d) indicating ~~the~~ a presence of the Enterprise Code field in the Vendor attribute Value field by providing a Vendor attribute-Type field on the Type field;

(e) indicating a presence of the set of Vendor attribute TLV fields by providing a single Vendor attribute Link State Identification (ID) field on the LSA header;

(f) assigning a numerical value to the Vendor attribute Link State ID field of the so as to avoid conflict between said numerical value and numerical values of an Opaque Type and a Type-Specific ID fields of a standard opaque LSA header; and sending said OSPF packet to one or more nodes of the optical network[.];

~~the Vendor attribute Link State ID field of the LSA header indicating the presence of the set of Vendor Attribute TLV fields and wherein said Enterprise code field includes information identifying a vendor.~~

11. (canceled)

12. (currently amended) The method as described in claim ~~10~~ 11, wherein the ~~numerical value of the~~ Vendor attribute Link State ID field replaces an Opaque Type and a Type-Specific ID fields of the standard opaque LSA header and has a numerical value which indicates the presence of Vendor specific link related information in the Vendor attribute-Data section of the set of Vendor Attribute TLV fields.

13. (currently amended) The method as described in claim ~~10~~ 11, wherein the ~~numerical value of the~~ Vendor attribute Link State ID field replaces an Opaque Type and a Type-Specific ID fields of the standard opaque LSA header and has a numerical value which indicates the presence of Vendor specific node related information in the Vendor attribute-Data section of the set of Vendor Attribute TLV fields.

14. (previously presented) The method as described in claim 12, wherein the Vendor specific link related information is a wavelength division multiplexing (WDM) link related information comprising one or more of the following:
frequencies of dither tones modulated onto a wavelength of the WDM link;
a location field listing the physical shelf, card slot, and port location of the node terminating the WDM link;
a wavelength identifier of the wavelength of the WDM link;
a path name assigned to the wavelength of the WDM link;
a direction of the WDM link; and
a working state of the wavelength of the WDM link.

15. (previously presented) The method as described in claim 14, wherein the Vendor attribute-Data section comprises a sub-TLV field, the sub-TLV field comprising a

sub-sub set of Vendor Attribute TLV fields, which contains said Vendor specific link related information.

16. (previously presented) The method as described in claim 13, wherein the Vendor specific node related information comprises one or more of the following:

- a Node Name which includes a text string bearing the name of the node; and
- a Software Version which includes a text string characterizing the current software load of the node.

17. (previously presented) The method as described in claim 16, wherein the Vendor attribute-Data section comprises a sub-TLV field, the sub-TLV field comprising a sub-sub set of Vendor Attribute TLV fields, which contains said Vendor specific node related information.

18. (previously presented) The method as described in claim 17, wherein the sub-TLV field comprises an Advertising Router ID field.

19. (currently amended) A method for distributing wavelength identification information for a wavelength division multiplexing (WDM) optical network using a known routing protocol, the method comprising:

~~providing~~ generating a packet formatted according to the known routing protocol at a network node; ~~and~~—

inserting in said packet a Vendor attribute-type field, a Vendor attribute-length field, an Enterprise Code field, and a Vendor attribute-~~d~~Data section, wherein the Vendor attribute-~~d~~Data section includes ~~the~~ a wavelength identification information of an optical channel to be distributed, and wherein said Enterprise code field includes information identifying a vendor; and

indicating the presence of the Vendor attribute fields by inserting a single Vendor attribute Link State Identification (ID) field in the packet.

20. (currently amended) The method described in claim 19, wherein the known routing protocol is the OSPF protocol, and the packet includes a Link State Advertisement (LSA) payload, comprising a set of Type/Length/Value (TLV) fields including said Vendor attribute-type field, Vendor attribute-length field, Enterprise Code fields, and the Vendor attribute-data section and a LSA header comprising said single Vendor attribute Link State Identification (ID) field.

21. (currently amended) A wavelength division multiplexing (WDM) optical network, using a known routing protocol for distributing wavelength identification information for the WDM optical network, the WDM network comprising:
a first network node element for generating and transmitting a packet formatted according to said known routing protocol and comprising a Vendor attribute-type field, a Vendor attribute-length field, an Enterprise Code field, and a Vendor attribute-data section, wherein the Vendor attribute-Data section includes the wavelength identification information of an optical channel to be distributed; said Enterprise code field including information identifying a vendor; said packet further comprising a single Vendor attribute Link State Identification (ID) field, indicating the presence of the Vendor attribute fields;
and
a second network node element connected to said first network node through a WDM link for receiving said packet.

22. (currently amended) The network as described in claim 21, wherein the known routing protocol is OSPF, and the packet includes a Link State Advertisement (LSA) payload, comprising a set of Type/Length/Value (TLV) fields, including said Vendor attribute-type field, Vendor attribute-length field, Enterprise Code fields, and the Vendor attribute-data section and a LSA header comprising said single Vendor attribute Link State Identification (ID) field.

23. (new) The method as described in claim 19, wherein the Vendor attribute-Data section comprises frequencies of dither tones modulated onto the optical channel.